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Vol. 5, No. 3. WASHINGTON, D. C. October, 1935.

Agriculture.

Agricultural financing through the Farm Credit Administration. Revised, 1935. 32p. U.S. Farm Credit Administration. Circular no.5.

Automotive development changes agricultural picture. By Charles Deere Wiman. S.A.E. Journal. v.37, no.2. August, 1935. p. 13-16.

Bankhead-Jones Act of 1935. Editorial. Experiment Station Record. v.72, no.3. September, 1935. p.289-291. Increased Federal aid for basic agricultural research, agricultural extension, and land-grant college instruction is authorized in act.

Loans by production credit associations. Revised, 1935. 12p. Farm Credit Administration, Washington, D.C. Circular no.3.

Selecting and financing a farm. 1935. 16p. Farm Credit Administration, Washington, D.C. Circular no.14.

Air Conditioning.

Air conditioning; its present and future economic possibilities. By E.C. Williams. The Bulletin, Hydro-Electric Power Commission of Ontario. v.22, no.8. August, 1935. p.255-268.

Choosing the right air conditioning system. By A. Warren Canney. Heating, Piping and Air Conditioning. v.7, no. 10. October, 1935. p.469-473. Part 7 - The use of units. Application of unit type of air conditioning system, factors involved in locating equipment, air supply, control of direct expansion units, and design of coil type jobs are among subjects covered.

Home cooled by heat valve on ridge of roof. Popular Mechanics. v.64, no.2. August, 1935. p.178. In open position it draws air from intake in basement through house and out at roof, thus providing steady stream of fresh air during night. In early morning valve is closed, thus bottling up cool air during day. Its operation, save for opening and closing valve, is automatic, and its cost is only a fraction of that involved in installation of usual mechanical system. Tests show valve will keep interior temperature considerably below outside air.

Refrigeration for cooling. By Harold L. Alt. Domestic Engineering. v.146, no.3. September, 1935. p.74-76, 161.

Air Conditioning. (Cont'd)

Tests show comparison of ice and mechanical systems in residence. By G.B. Helmrich. Heating and Ventilating. v.32, no.8. August, 1935. p. 24-27. Tests on cooling house by mechanical system are compared with tests conducted on same building when cooled with ice. Electrical cooling for one summer cost $19. as compared with average of $40. per summer with ice.

Trends in air conditioning. By S.C. Bloom. Refrigerating Engineering. v.30, no.1. July, 1935. p. 7-8, 31. Cites contributing factors - smaller units, simpler, more compact systems, new refrigerants and controls.

Alcohol.

Alcohol and alcohol-gasoline blends as fuels for automotive engines: II. Performance tests of nearly straight alcohol of different grades using a four-cylinder and an eight-cylinder automobile engine. By A.L. Teodoro. 1935. 296-325p. Separate from Philippine Agriculturist, v.24, no. 4. September, 1935.

Alcohol-gasoline blend motor fuel - Hungary. Western Irrigation. v.17, no. 12. September, 1935. p.4. Alcohol blended with gasoline has been unqualified success in Hungary. In addition to its commercial advantages in providing better fuel, blend has created wide market for farm products in making of alcohol. Blended fuel is known as Motalko. Legislation requiring 20 per cent alcohol blends in all motor fuel was passed in Hungary about four years ago. In operations on farm lands blended fuel works better in motor engines than straight gasoline. Apparently engines keep in better shape, there is less trouble from carbon, and it facilitates winter starting. It works equally well in both European and American cars without any engine or carburetor changes.

Artichoke power alcohol. Western Irrigation. v.17, no.12. September, 1935. p.9. Cooperation between agriculture and petroleum industry will do more than all other agencies to restore prosperity and rebuild purchasing power on nation-wide basis. Artichoke power alcohol is superior and satisfactory motor fuel is shown by following facts: 1. Entire absence of "pinking" or "knocking." 2. Greater flexibility and greater power output which means much better top-gear performance, particularly noticeable in hill-climbing. 3. Assurance of higher maximum speed, and also greatly improved acceleration, because it permits more advanced ignition timing to be used. 4. Increase in miles per gallon because of better performance that will be obtained in top gear. 5. Assurance of cleaner and cooler engine. Acre of artichokes will yield 300 gallons of anhydrous alcohol, 1250 pounds of high protein feed, 750 pounds of dry ice and 100 pounds of yeast.

Building Construction.

Bibliography on new building materials. Compiled by Dorothy W. Graf. 1935. 9p. Mimeographed. U.S. Department of Agriculture. Bureau of Agricultural Engineering.

Building Construction. (Cont'd)

Calcium hydrosilicate as a building material. By F.O. Anderegg. Industrial and Engineering Chemistry. v.27, no.9. September, 1935. p.1019-1020.

Economics of rigid frames for building foundations. By Kimball R. Garland. Engineering News-Record. v.115, no.13. September 26, 1935. p.427-429. Comparative design and cost analysis of pile and rigid-frame foundations for a steel-frame office building on deep clay soil.

How to build with native rock. By W.H. McPheters. 1935. 11p. Oklahoma. Agricultural and Mechanical College. Circular no.317.

Quick way to make reliable cost estimates. By Arthur C. Shire. American Architect. v.146, no.2631. March, 1935. p.41-45. As accurate, practical method of estimating it can be useful to architects in establishing preliminary costs upon which decisions can be based. In practice it has been found more generally trustworthy than square or cubic foot system.

Rostone operations. By R.L. Harrison, P.W. Jones and R. Norris Shreve. Industrial and Engineering Chemistry. v.27, no.9. September, 1935. p. 1023-1026. Rostone reactions have been applied to produce building block of many desirable properties from easily available raw materials. Some 90 per cent of these raw materials is fly ash, a waste material from combustion of powdered coal, disposal of which frequently presents difficult problem.

Structural products in gypsum. By Clarke F. Davis. Industrial and Engineering Chemistry. v. 27, no. 9. September, 1935. p. 1017-1019. Cypsum has long been used in the building industry. As result of recent development work, prefabricated structural units of gypsum in form of planks, slabs, etc., with many desirable characteristics are now available. Use of these gypsum structural units for complete structural core of modern dwellings is currently under test in construction of complicated eight-room house.

Concrete.

Behavior of high - early - strength cement concretes and mortars under various temperature and humidity conditions. By Louis Schuman and Edward A. Pisapia. 1935. 723-747p. U.S. National Bureau of Standards. Research paper, R.P. 799. Part of Journal of Research, volume 14, June, 1935.

Concrete in modern home construction. By R.E. Copeland. Industrial and Engineering Chemistry. v.27, no.9. September, 1935. p.1009-1011. Survey of home construction field shows demand for fire-safe, livable homes can be and is being filled with at least one type of construction - concrete. One or more of three general types of concrete homes (concrete unit masonry, monolithic, or large prefabricated units) are available today to home owners in practically every community.

Concrete . (Cont'd)

Plastic flow of Portland cement concrete. By J.R. Shank. Industrial and Engineering Chemistry. v.27, no.9. September, 1935. p.1011-1014. "Plastic flow" of concrete is defined and its application to structural materials is discussed. Sources of test data are cited and phenomenon is discussed. General curve equation for plastic flow in concrete is offered. Variations in constants for different concretes under different ages at loading and under different conditions are given. Comparisons with concrete using other cements and other materials are shown. Effects of plastic flow on distribution of stresses in reinforcement and other structural members are given and illustrated for both sustained stress and sustained strain.

Conservation.

Meaning of conservation. By Rexford G. Tugwell. Arkansas Farmer. v.33, no.4. September 1, 1935. p. 5, 8.

Cotton and Cotton Ginning.

Brief discussion of gin saw tooth form and shape. By Charles A. Bennett. Cotton Ginners' Journal. v.7, no.1. October, 1935. p.3-4, 14.

Device for separating different lengths of fibers from seed cotton. By Honor C. McNamara and Robert T. Stutts. 1935. 16p. U.S. Department of Agriculture. Circular no. 360.

Quality of Arizona cotton. By R.L. Matlock and J.R. Kennedy. 1935. 289-351p. Arizona. Agricultural Experiment Station. Bulletin no. 150.

Dams.

Discussion of check dams. By J.B. Lippincott. California Citrograph. v.20, no.9. July, 1935. p. 266, 298. Summary: 1. While building of low check dams may aid in stabilizing of channel of mountain stream and of side walls of canyons, they will not materially reduce peak flow, or debris of major flood. 2. Building of any type of check dams does not obviate necessity for construction of stabilized channels across delta cones and valleys below mountain drainage areas. 3. Half of check dams built in past by Los Angeles County flood control district have failed. 4. Where check dams are built stable types should be adopted. 5. No generalized conclusion should be drawn as to best type of construction to be adopted for all drainage basins. 6. Most effective and permanent relief from both flood and debris menace is brush cover of our drainage basins which should be protected from fires to limit of our ability both by improvement of fire fighting methods, and more exacting regulations for use of our forest reserves by the public.

Observation and record of pressures below works on permeable foundations. 1934. 19p. India. Central board of Irrigation. Publication no.8. Object in view is to indicate general lines for location and erection

Dams. (Cont'd)

of pressure pipes under works on permeable foundations and to standardize instruments for measuring pressures under such works and methods of observation, record and analysis of these pressures.

Ditching.

Ditching by hydraulic land dredge. By A.E. Mosher. Engineering News-Record. v.115, no.12. September 19, 1935. p.391. Present machine designed solely for clearing hyacinths and silt. Casing carries spiral cutting screw and revolves around outside of stationary pump casing. This spiral center breaks and cuts soil and vegetation at surface and forces it down to mouth of pump. Both pump and cutter are driven by 25-hp. engine operating on tractor distillate. Discharge of refuse with large volume of water avoids any spoil bank, and fields are left level and unobstructed after passage of machine. Velocity of flow into pump intake is such that no volume of fine suspended silt is left to redeposit in ditch.

Drainage.

First American drainage engineer. By John R. Haswell. Agricultural Engineering. v.16, no.9, September, 1935. p.351-352.

John Johnston - the Father of tile drainage in America. By B.B. Robb. Agricultural Engineering. v.16, no.9. September, 1935. p.349-350, 352, 355.

Droughts

Cycles that cause the present drought. By Halbert P. Gillette. Water Works and Sewerage. v.82, no.8. August, 1935. p.289-292.

What can science do about drought? Popular Mechanics. v.64, no.2. August, 1935. p.206-207, 142A.

Electric Service, Rural.

Material needs of rural extensions. Electrical World. v.105, no.20. September 28, 1935. p.52-54. Estimates made on basis of close examination of every proposed extension route, coupled with detailed knowledge of recent field costs of utility practice.

Electricity on the Farm.

Burglar proofing the farm. By H.N.Colby. 1935. 15p. University of New Hampshire. Extension Service. Extension Circular no.171.

Electrical service for Ohio farms now available through the R.E.A. By I.P. Blauser. 1935. 11p. Ohio state university. Agricultural extension service. Bulletin no.165.

Electricity on the Farm. (Cont'd)

Electricity on the farm, A partial list of references, 1920-1934. Compiled by Dorothy W. Graf. 1935. 110p. mimeographed. U.S. Department of Agriculture. Bureau of Agricultural Engineering.

Farewell to boloney electrification. By Raymond S. Tompkins. Electrical World. v.105, no.20. September 28, 1935. p.36-37. This job of electrification of America will start movement of no less than $16,500,000,000 in goods and services throughout this country. It will put more than 1,000,000 men and women back to work. It will add more than $2,000,000,000 to the payrolls of the nation.

Light up the farm. By Morris L. Cooke. Bureau Farmer. v.10, no.12. August-September, 1935. p.5, 15. It is sheer nonsense to say that the farmer cannot afford electric service, particularly in view of comparatively large numbers who have telephone service and automobiles. Survey of Mississippi Valley discloses that seven farms have automobiles and four farms have telephones for each farm that has electricity.

Minutes - Twelfth Annual Meeting, Committee on the Relation of Electricity to Agriculture. July 31, 1935. Chicago, Ill. 1935. 4p. Multigraphed.

New Government agency to help expand power for rural areas. Extension Service Revidw. v.6, no.9. September, 1935. p.116, 126.

Rural electrification program opens new field. Domestic Engineering. v.46, no.3. September, 1935. p.52-54.

Rural electrification survey. By David S. Weaver. Agricultural Engineering. v.16, no.9. September, 1935. p.369-371.

Twelfth annual report to the Committee on the Relation of Electricity to Agriculture by the director. July 31, 1935. Chicago, Ill., 1935. 24p. Multigraphed.

What is rural electrification? By E.A. White. Agricultural Engineering. v.16, no.9. September, 1935. p.356-357.

Engine Design.

Trends in engine design as influenced by fuel volatility. By John M. Campbell, Wheeler G. Lovell and T.A. Boyd. S.A.E. Journal. v.37, no.2. August, 1935. p.307-312. Author states that system of classfying gasoline in terms of volatility is needed, and discusses various aspects of starting problem. Other features include comments upon trends in mixture temperatures, crankcase dilution, and vapor lock. Conclusions reached is that changes will continue to be made in fuels and in cars; hence, there is need for fitting fuels to engines and engines to fuels to best advantage of user, especially because automobile manufactuers and gasoline producer are trying to please same people.

Erosion Control.

Erosion of agricultural soils in the Philippines. By Robert L. Pendleton. Sugar News. v.16, no.5. May, 1935. p.237-248.

Goodbye, good earth! By L.L. Rummell. Ohio Farmer. v. 176, no.2. July 20, 1935. p.3, 19. Erosion takes his toll of rich soil.

Farm Buildings and Equipment.

Modern design in RBM farm building. By Judson Vogdes. Brick and Clay Record. v.87, no.3. September, 1935. p. 90-91. Semi-circular brick beams span across width of roof with radius of 15 feet. Beams carry precast roof slabs. Cost low, maintenance at minimum.

Farm Machinery and Equipment.

Bibliography on combined harvester-threshers. Compiled by Dorothy W. Graf, Librarian. 1935. 23p. Mimeographed. U.S. Department of Agriculture. Bureau of Agricultural Engineering.

By his plow is he known. By E.T. Leavitt. Utah Farmer. v.56, no.3. September 10, 1935. p.23.

Husker-shredder profitable. Better Farm Equipment and Methods. v.8, no.2. October, 1935. p.8-9. Although effort was made to fashion machine for husking and shredding corn as early as 1882 it was not until 1894 that basic combination husking and snapping rolls were devised which proved to be forerunner of modern day compact and inexpensive machine. Earlier models were constructed of wood but now top, sides and bottom are of heavy gauge galvanized steel that will last for years. Main frame is arc-welded and so braced that true alignments of shafts and other working parts are assured. Slip clutches have been introduced to protect important working parts against breakage in case some foreign substance enters machine. Machine provides not only economical way to husk from 300 to 1,500 bushels of corn in a day, but also makes possible use of entire plant, adding around 30% to feeding value of crop.

Machinery gives more jobs. Better Farm Equipment and Methods. v.8, no.2. October, 1935. p.16. Increase in service employment is due principally to development of machine which has made it possible for so many of our people to enjoy in 20-year period enough of life's goods to employ additional army of nine millions of workers to distribute and service them.

Power equipment for the vegetable producer. By Alvan C. Thompson Market Growers Journal. v.57, no.6. September 15, 1935. p.363, 265, 367, 369-370. Development of tractor power on farms. Planting. Transplanting. Cultivating and side-dressing. Spraying and dusting. Harvesting. Hauling vegetables from the fields. Preparation for market. Tractors. Size of farms. Improvement in efficiency. Conclusion.

Farm Machinery and Equipment. (Cont'd)

Run automatic hay combine. Idaho Farmer. v.53, no.15. July 25, 1935. p.6. In one operation it picks up the hay chops it and blows it into canvas slings which are carried in wagon racks.

Farm Mechanics.

Farm horseshoeing. By Henry Asmus. 1935. 28p. Cornell University. Extension bulletin no.323.

Farms.

Appraising farms for mortgage loans. 1935. 19p. U.S. Farm Credit Circular no.13.

Some results of farm cost accounts in New York. By P.J. Findlen. 1935. 23p. Cornell University. Extension bulletin no.318.

Fences.

Fence expansion controlled by spring in top rail. Popular Mechanics. v.64, no.2. August, 1935. p.179. Spring resists expansion and contraction, thus keeping railing from buckling due to heat or cold, and fence from getting out of alignment.

Good fall for farm fence. Implement and Tractor. v.50, no. 18. September 7, 1935. p. 12-13, 26.

Fertilizer Application.

Fertilizer placement important. Better Farm Equipment and Methods. v.8, no.2. October, 1935. p.16. Most fertilizer distributors are small and not costly, but they offer farmer better chance to increase crops than other agricultural machines. Average increases of 20 bushels of potatoes, 500 pounds of snap beans, and 100 pounds of lint cotton an acre doubtless could be obtained by better placement of fertilizer in many cases where relatively large amounts are improperly applied.

Fertilizer placement studies with potatoes in 1934. By B.E. Brown and G.A. Cumings. 1935. 178-182p. Reprinted from American potato journal, July, 1935.

Fertilizers.

Effect of alfalfa and farm manure on yields of irrigated crops in the Great Plains. By Stephen H. Hastings. 1935. 40p. U.S. Department of Agriculture. Technical bulletin no. 483.

Flax.

Escape from the dilemma of cotton. By C.S. Burton. Magazine of Wall Street. v.56, no.11. September 14, 1935. p.536-537, 568. Growth of flax offers a way out.

Flood Control.

Effective river control by concrete tetrahedrons. ... Engineering News-Record. v.115, no.14. October 3, 1935. p.470-471. Service lives of five years on the Bello Fourche, and seven years on the Santa Clara indicate durability and efficiency of skeleton tetrahedrons and concrete for channel regulation and bank protection.

Hopkins approves flood control project on the Brazos river in Texas. Engineering News-Record. v.115, no.13. September 26, 1935. p.447. Allotment of $30,000,000 is sought. Calls for construction of twelve dams on middle reaches of Brazos River for flood control and irrigation. Future development of project for production of hydro-electric power is also contemplated.

Rio Grande flood control given approval. Engineering News-Record. v. 115, no.12. September 19, 1935. p.413. Authorizes State Department to negotiate treaty with Mexico for flood control work, division of Rio Grande waters, channel rectification, more nearly correct establishment of international boundary and other items. Applies only to portion of river below Fort Quitman.

Fuels.

Butane drives auto fitted with special still. Popular Mechanics. v.64, no.2. August, 1935. p.190. Automatic converter has been tested on automobiles and stationary engines. Equipment includes double partition tank, one side used for storage of butane, other to house generator or still that converts butane into gas before it is sucked into engine. Process requires no more control from operator than gasoline-driven machine. Butane device permits use of higher compression heads. Combustion is said to be practically perfect under normal running conditions. Exhaust contains no carbon-monoxide, and no carbon deposits are left in motor.

300 years of American fuels. By A.C. Fieldner. Industrial and Engineering Chemistry. v.27, no.9. September, 1935. p.983-988.

Heating.

Fuel costs saved by copper coils tapping boiler. Popular Mechanics. v.64, no.2. August, 1935. p.224. Designed to increase boiler efficiency in home or industrial furnace, and particularly valuable when converting from coal to oil or gas burner, copper alloy coils which tap boiler wall can be installed directly in firebox. Water is led away from boiler at base of coil, heats rapidly and rushes back from top of coil to circular through boiler again. Four coils would be required in average home furnace, paying for themselves in fuel saving.

Hitches.

Vertical hitching of farm implements. By A.W. Clyde. Agricultural Engineering. v.16, no.9. September, 1935. p.358-360, 364. Paper limited to component of forces in vertical plane of motion. Side com-

Hitches. (Cont'd)

ponents not treated, except in so far as they introduce friction or other resistance in vertical plan of motion. Summary: 1. Position and direction of pulling force is one of important ways by which designer or operator can influence performance or draft of farm implement. 2. Forces or implements conform to common laws of mechanics for equilibrium of forces in space. If certain special cases are omitted and uniform motion is considered, forces may be divided into only three groups; weight, W; pulling force, P, and resultant soil resistance, R. 3. If possible, R should be separated into its controllable and uncontrollable parts. 4. Range within which position and direction of P can be altered is governed mainly by whether or not tool has wheels or supports on soil, positioning of such supports, weight of tool, and position of center of gravity. 5. Advantage may be taken of foregoing to reduce slippage of tractor drivewheels, particularly with rubber tires in plowing. 6. Tools of chisel or wedge shape are much different than disks. 7. Principles explained and applications given to different types of implements can be used for more intelligent design and operation.

Hotbeds.

Electric heat for propagating benches. By J.R. Tavernetti. Agricultural Engineering. v.16, no. 9. September, 1935. p.353-355. Gives cross section of propagating bench showing location of heating cable and temperature indicators.

Houses.

Evolution of shelter. By F. Leo Smith. Industrial and Engineering Chemistry v.27, no.9. September, 1935. p.997-999.

Looking ahead in planning. By Frank J. Forster. American Architect. v.146, no. 2633. May, 1935. p.44-49.

Planning with room units. American Architect. v.146, no.2633. May, 1935. p.72. Idea is predicated upon development of standardized room units which can be combined in a variety of ways. Standardization of closets, plumbing, heating and other equipment is visualized as a means of increasing certainty with which comfort conditions can be predicted and design problem simplified. It is also believed that standardization of equipment and construction methods is important in lowering of construction costs. Standardization of room units would in no way limit variety of shape and form in which houses might be developed but would result in more scientific, accurate and efficient design.

Prefabricated housing. Mechanical Engineering. v.57, no.9. September, 1935. p.571-579. Abstracts of papers comprising symposium held at A.S.M.E. Cincinnati meeting.

Schindler-shelters. American Architect. v.146, no.2633. May, 1935. p.70-71. Suggestion for use of prefabricated units in small house design and construction. General scheme, provides for standard group to include kitchen, bathroom and laundry. Remainder of house enclosure, including floor and roof, is shell of hollow reinforced concrete construction. There are no interior supports, partitions being fashioned

Houses. (Cont'd)

from standardized closet units which include doors and which can be moved to satisfy changing requirements of owner. Windows are of new type designed by architect. They are stamped from sheet metal, slide horizontally and are glazed with heavy glass without muting. Structural shell is monolithic, and is formed on job by means of "Garrett Construction." This employs light metal forms wiremesh and cement plaster, to produce two thin concrete slabs connected by metal braces that function as structural web members.

Selected bibliography on housing. 1935. 9p. National association of housing officials. Chicago, Ill.

Winning designs in the "home electric competition." American Architect. v.146, no.2632. April, 1935. p.33-48.

Wood meets challenge for low-cost houses. Popular Mechanics. v.64, no.2. August, 1935. p.186. Wooden panels to form walls, floors and roof consist of two plywood surfaces fixed with water-resistant glue to inner skeletal framework. No nails are used. Gluing panels to frame creates complete joint through which weight on one surface is distributed to other surface. Panels are assembled with grooved uprights and strips which fit into adjoining panels. Wall panels can be painted on one surface and finished for interior walls on other, with similar treatment being given roof panels. Private contractors have estimated it could be built on handicraft plan for slightly more than $2,000, and mass production of panels by factory methods would reduce this cost to even lower figure.

Hydraulics.

Hydraulic laboratory established in China to study river control and erosion. Engineering News-Record. v.115, no.14. October 3, 1935. p.463. At Hopei Institute of Technology in Tientsin, at which major problems associated with control of troublesome rivers of China will be studied. Special facilities have been provided for research on behavior of loess silt in river channels.

Hydraulic research at Iowa University. By F.T. Mavis. Engineering News-Record. v.115, no.13. September 26, 1935. p.433-437.

Insect Control.

Light traps for codling moth control. By G.E. Marshall and T.E. Hienton. Agricultural Engineering. v.16, no.9. September, 1935. p.365-368, 371. To determine possibilities and attractiveness of different light rays, Purdue University Agricultural Experiment Station inaugurated series of fundamental studies in 1933 which gave such significant results that studies have been continued each year since that time. For information of others interested in problem of insect control by use of light as attracting agency, results of first two years' study are here briefly given as preliminary or progress report.

Insulation.

- Insulation of farm buildings. By H.B. White. 1935. 1p. University of Minnesota. Agricultural extension division. Agricultural Engineering News Letter no.41.

Insulation. (Cont'd)

Insulation of farm buildings. By H.B. White. Northwest Farmer. v.4, no.1. September, 1935. p.11. It has been found by test that for winter insulation outer materials should stop wind while insulating material is best placed inside where temperature is higher. Narrow air space not over three-fourths of an inch is better than wider space where air currents can start and loss of heat be increased. Good insulation not only makes it easier to keep uniform temperature in winter and save fuel but it also keeps building cooler in hot weather. Cost of insulation for seven room house when ½" insulation was applied to walls and second floor ceiling was about $200; for nine room house about $285.

Irrigation.

Application of water by means of sprinklers. By A.G. Salter. California Cultivator. v.82, no.16. August 3, 1935. p.450. Advantages and disadvantages of sprinkling system may be enumerated as follows: Sprinkling saves expense of furrowing out, since water is distributed over entire surface. Sprinkling system cuts down to some extent cultivation costs. If properly operated sprinkling system will have less excessive percolation. Sprinkling system should distribute moisture over much larger area than furrow or more most other methods of irrigating. Sprinkling system should aid in distribution of nitrates. Sprinkling system under certain conditions may aid in obtaining a more uniform cover crop. One of outstanding disadvantages of sprinkling system is cost of installation.

Boron in L.A. irrigation to be reduced. By R.E. Hodges. Pacific Rural Press. v.130, no.6. August 10, 1935. p.122, 129.

Irrigating citrus orchards. By Marvin B. Rounds. California Citrograph. v.20, no.9. July, 1935. p.275, 291. Rate of water used. Methods of application. Furrow irrigation. Alternate irrigation. Overhead system. Program of irrigation for the year.

Irrigation objectives. By O.F. Israelson. Utah Farmer. v.56, no.3. September 10, 1935. p.18, 22. VIII. Alkali problems in irrigation.

Mexican irrigation project resumed after 25 years. Engineering News-Record. v.115, no.11. September 12, 1935. p.358. Construction has been started by Mexican government on large dam on Nazar river near Torreon for purpose of storing water for irrigating 315,000 acres of land in Laguna district, and other parts of valley. Dam and canal system will cost approximately $8,000,000. It is expected that with assurance of ample supply of water for irrigation there will be great expansion of cotton growing in irrigable area of valley of river. Construction has also been started on two other large dams, one San Juan river, not far from where it empties into the Rio Grande, which will afford water storage for irrigating 128,000 acres, and other on Yaqui river, Sonora, which will supply water for 300,000 acres. Total expenditures for three projects will be about $19,500,000 (U.S.)

Irrigation. Cont'd)

Overhead irrigation, 700 acres. By R.E. Hodges. Pacific Rural Press. v.130, no.6. August 10, 1935. p.127. Six-inch pipe lines cross fields. From valves about 90 feet apart in these lines, four-inch, portable iron pipe in 20-foot lengths is laid at right angles 660 feet each direction. Each length of four-inch pipe has four-inch length of one-inch pipe welded into its side close to one end for attachment of rotating sprinkler heads. Heads are attached only to alternate lengths of pipe, making them 40 feet apart. Each head throws water about 50 feet, making 100-foot circle, lapping circles for thoroughness in application of water. With 100-pound pressure, application of 80 to 85 miner's inches, equivalent to about 1½ inches of rain in two hours.

Salinity of irrigation water and injury to crop plants. By Frank M. Eaton. California Citrograph. v.20, no.11. September, 1935. p.334, 362-365. Effect of solution concentration on water uptake and root growth. Plant symptoms. Toxic concentration of soil solution constituents. Status of available information on salinity.

Suggestions for summer irrigation of walnuts. By M.H. Kimball. California Cultivator. v.82, no.16. August 3, 1935. p.447, 459. Over irrigation is dangerous practice, preventing soil aeration and resulting in root injury either by inability to get sufficient sxygen for its metabolism or by partial suffocation process due to accumulation of carbon dioxide.

Waste water, weeds and want. By J.C. Hogenson. Utah Farmer. v.56, no.4. September 25, 1935. p.3, 8. Gives eleven ways of saving irrigation water as suggested by experience and common sense.

Land.

Land of your profession. By Isaiah Bowman. Science. v.82, no.2126. September 27, 1935. p.285-293.

Land policy for the nation. Fertilizer Review. v.10, no.4. July-August, 1935. p.2-3. Program recommended by National Resources Board, is expected to: 1. Provide for systematic development of our water resources for purposes of sanitation, power, industrial uses, transportation recreation, domestic consumption, and other collateral uses on a far higher level than ever before. 2. Remove the recurring manace of great floods and vast losses to persons and property. 3. Reduce heavy losses of soil caused by uncontrolled erosion. 4. Eliminate use of land incapable of affording minimum standard of living, develop agricultural production on most suitable soils only, and aid in raising standard of living in many agricultural regions. 5. End wasteful use of our mineral resources and substitute national policy of mineral conservation. 6. Make available large areas of land for purpose of popular recreation. 7. Assemble basic data in regard to mapping, public finance, and population, necessary for national planning. 8. Avoid extravagance caused by failure to coordinate public works -

Land. (Cont'd)

Federal, State and local. 9. Provide for continuous long-range planning of land, water, and mineral resources in relation to each other and to larger background of social and economic life in which they are set.

Migration to poor land seen as national danger. Science News Letter. v.28, no. 748. August 10, 1935. p.83-84. Unemployed of present depression were not able to follow example of those of past century. They could not"go West" and take up fertile lands in Government public domain. Instead they were forced to settle on cheap or abandoned farms in submarginal areas - perhaps returning to very lands which they or others had deserted as worthless in good times.

Miss Schnurr to serve on important Committee. Reclamation Era. v.25, no.9. September, 1935. p.192. At suggestion of President, committee of eight, four designated by Secretary of Agriculture, and four by Secretary of Interior, has been appointed to consider and develop national policy with reference to taking out of cultivation marginal lands of productive potentiality equal to new lands brought into cultivation through irrigation. This committee is known as Submarginal Land Committee, and is subsidiary to Allotment Board.

Uncle Sam - land agent. Nebraska Farmer. v.77, no. 19. September 14, 1935. p.8. During past year Land Policy section (now Land Utilization) has secured options on 133,000 acres in Nebraska, 52,000 acres in Kansas, 681,000 acres in South Dakota, 1,305,000 acres in North Dakota, 300,000 in Wyoming, and 2,700,000 in Montana. Government has accepted options on 1,300,000 acres in the Dakotas and Montana. About 20,000 acres in South Dakota and the same in Montana has actually been purchased.

Maps.

Mapping by use of aerial photographs. By B.B. Talley. Military Engineer. v.27, no. 155, pt. 1. September-October, 1935. p.357-361.

Planimetric maps of the Tennessee Valley. By T.P. Pendleton. Military Engineer. v.27, no. 155, pt. 1. September-October, 1935. p.371-375.

Miscellaneous.

Arlington Experiment Farm. By Edwina Austin Avery. Commonwealth. v.11, no.9. September, 1935. p.12-15.

Room with two beds folds in auto trunk. Popular Mechanics. v.64, no.2. August, 1935. p.236. Convertible into room ten times its original size. Beds are arranged in double decker fashion, rigidly attached to supporting members.

Snow is melted from walk by electric cables. Popular Mechanics. v.64, no.2. August, 1935. p.219. After laying lead-sheathed resistance cable in fresh pavement, all that is necessary to keep walk clear is to turn electric switch when blizzard begins. As current warms hidden wires above freezing temperature, snow and ice melt away. Ice hams beneath garage doors and slippery grades on driveways and walks are thus eliminated.

Miscellaneous. (Cont'd)

So they moved to Matanuska. By Arville Schaleben. Successful Farming. v.33, no.10. October, 1935. p.9, 64-67. Discussion of the moving of families to Alaska.

Mississippi River.

Stages of the Mississippi River and of its principal tributaries for 1933. Vicksburg, Miss., Mississippi River Commission. 1935. 110p.

Motor Trucks.

Why farmers need motor trucks. Implement and Tractor. v.50, no. 18. September 7, 1935. p.17-18. Inefficient transportation imposes penalties which are deducted from prices paid for farm crops at terminal markets.

Motors.

Motors and control for refrigeration service. By M.H. Halberg. Southern Power Journal. v.53, no.10. October, 1935. p.40, 42, 44, 46. Part 2. Selection of motor controllers involves consideration of type of motor, the service to which it is applied, and degree of automatic operation.

Multi-speed induction motors for fans and blowers. By George H. Hall. Heating and Ventilating. v.32, no.8. August, 1935. p.30-32.

Pipes and Piping.

Simplified method for solving piping problems. By Siegfried W. Spielvogel and Samuel Kameros. Heating, Piping and Air Conditioning. v.7, no. 10. October, 1935. p.474-478. Part 2, concluding discussion of simplified method for checking assumed piping layout for intensity of end reactions and determination of bending moments.

Potatoes.

Seed value of potatoes grown in different crop rotations with irrigation. By H.O. Werner. American Potato Journal. v.12, no.5. May, 1935. p.118-124.

Poultry Houses and Equipment.

Poultry houses and appliances for West Virginia. By H.M. Hyre, T.B. Clark and E.T. Wightman. 1935. 32p. West Virginia. College of Agriculture. Extension Service. Circular no. 311.

Temperature distribution as a function of electric brooder performance. By John E. Nicholas and E.W. Callenbach. Agricultural Engineering. v.16, no. 9. September, 1935. p.361-364. Findings demonstrate several requirements of electric brooder construction: 1. Location and heat capacity of element or elements are of great importance.

Poultry Houses and Equipment. (Cont'd)

2. It is essential that gererated heat be distributed under brooder canopy in such manner as to supply maximum "chick comfort" area.
3. Reliable and reasonably sensitive thermostats must be provided in order that proper operating temperatures can be secured and held.
4. Proper control of ventilation and suitable insulation in order to prevent waste of available heat are necessary for economical operation.

Power Farming.

Comparisons of the electric motor with the tractor as a source of power about the farm. Rural Electrification and Electro-Farming, v.11, no.123. August, 1935. p.84. Table shows consumption of electricity and paraffin and their cost per ton of grain and per ton of rural produce. While tables show that that power cost is less with tractor than with motor, it was found that when overhead charges and depreciation were brought into account, electric motor worked out as cheaper source of power.

Pumps and Pumping.

Evaluating pump efficiency as a basis for better purchase specifications. By H.J. Summers. Engineering News-Record. v.115, no.11. September 12, 1935. p.375-376. Two ways to arrive at this valuation - namely by evaluating each point of increased overall efficiency above normal standard, and by evaluating each kilowatt input of power saved for fixed output. Primary assumptions need to be made: 1. Cost of pump operation is yearly cost based on total pump cost during expected life of pump, divided by life. 2. Life of pump must be definitely assumed according to local experience and practice, beginning when pump is placed in operation and ending when it is fully depreciated, or is replaced due to obsolescence. 3. Repair as factor in yearly pump cost is eliminated because it is not capable of exact analysis.

Water, water everywhere. By H.E. Wichers. Successful Farming. v.33, no. 10. October, 1935. p.22, 43. Pumps come at prices to fit your purse and are the almost wear-proof hearts of lifetime water systems.

Rain and Rainfall.

Rainfall intensity-frequency data. By David L. Yarnell. 1935. 68p. U.S. Department of Agriculture. Miscellaneous publication no.204.

Reclamation.

Reclamation Bureau gets allotment for Central Valley work. Engineering News-Record. v.115, no.12. September 19, 1935, p.413. Originally planned as project to be undertaken by State of California, will now be carried forward as U.S. Bureau of Reclamation project to provide water supplies for domestic, municipal, irrigation and industrial uses, benefit navigation, furnish flood and salinity protection and develop hydro-electric energy.

Reclamation. (Cont'd)

Reclamation receives additional allotments. Reclamation Era. v.25, no.9. September, 1935. p.173-174.

Yuma-Gila work starts. Arizona Producer. v.14, no. 13. September 15, 1935. p.1, 8. New Irrigation project is being launched in Arizona, one that is to cost $19,475,000 and serve Colorado River water to 150,000 acres, 139,000 of which are virgin desert.

Refrigerants.

Common refrigerants. By J.S. Beamensderfer. Industrial and Engineering Chemistry. v.27, no. 9. September, 1935. p.1027-1030. Carbon dioxide. Ammonia. Freon. Methyl chloride. Sulfur-dioxide. Methyelene chloride. Water.

Refrigeration.

Domestic refrigeration. By Charles H.Roe. Refrigerating Engineering. v.30, no.1. July, 1935. p.15-17, 38. The industry and its present product.

G-E engineers devise method of determining magnitude of cooling load factors. Electric Refrigeration News. v.16, no.4. September 25, 1935. p.16-19. New data on factors which affect cooling load, and systematic and rational method for accurately determining its character and magnitude.

New refrigeration system developed for trailers. Ice and Refrigeration. v.89, no.4. October, 1935. p.186. Illustrated description of newly developed brine-cooled refrigeration system developed for use in trailer bodies. Test run made from Denver to Chicago last summer. Table shows performance data. System designed to provide equipment of low production and operating cost.

Refrigeration - fuel system. By Guy L. Tinkham. Refrigerating Engineering. v.30, no.1. July, 1935. p.21-22, 24. New ideas for trucks and buses now in practice.

Repairs and Repairing.

Now is the time to repair the house. 1935. 4p. Washington. State College of Agriculture. Extension Service. Extension bulletin no.207.

Research.

Current research work at Purdue. Engineering News-Record. v.115, no. 14. October 3, 1935. p.456-458. Blended cement. Prestressed concrete beams. Prestressed concrete pipes. Orifices and weir discharge. Filter laterals. Pressure losses in grid systems.

Silos.

Builds silo as he fills. Capper's Farmer. v.46, no.10. October, 1935. p.16. Quickest silo to build is crib type, consisting of sections of slat fencing or woven wire lined with reinforced building paper. It may be a little more expensive than trench silo, but where materials are available, ensiling may proceed immediately, without even two or three days delay occasioned by digging trench.

Measuring feed capacity of silos. Farm Implement News. v.56, no.20. September 26, 1935. p.29.

Silage is equal to pasture. By C.W. Mullen. Farmer Stockman. v.48, no.14. July 15, 1935. p.3, 7. Gives corss section of trench silo.

There is safety in good silos! By C.W. McCampbell. Farmer-Stockman. v.48, no.13. July 1, 1935. p.5. Silo filling costs vary from 50 cents to $2 per ton, and can be kept at minimum by cooperation among neighbors, or by custom filling.

Trench silos and how to make them. By W.H. McPheters. 1935. 10p. Oklahoma. Agricultural and Mechanical College. Circular no. 320.

Silt.

Silt surveys - Guernsey reservoir, North Platte project, Nebraska-Wyoming. By J.A. Keinig. Reclamation Era. v.25, no.9. September, 1935. p.179. Tabulation shows maximum and total inflow each year, and accumulated storage loss after each 2-year period.

Soils.

Peat and muck, character and utilization. By B.D. Wilson. 1935. 10p. Cornell University. Extension bulletin no. 320.

Spray Removal.

Spray-residue removal from apples and other fruits. By M.H. Haller, Ervin Smith and A.L. Ryall. 1935. 26p. U.S. Department of Agriculture Farmers' bulletin no. 1752.

Storage Houses.

Simple root-vegetable cellar. By J.C. Hogenson. Utah Farmer. v.56, no.3. September 10, 1935. p.19.

Sweet potato storage houses. By E.R. Gross. 1935. 4p. New Jersey. Agricultural Experiment Station. Circular no.359.

Stream Flow.

Construction of rating curves for rivers. By H.R. Grumann. Military Engineer. v.27, no. 155, pt.1. September-October, 1935. p.378-383. Description of new method.

Surveying.

First and second order triangulation and traverse in North Carolina (1927 datum) By Oscar S. Adams. 1935. 410p. U.S. Coast and Geodetic Survey. Special publication no. 192.

Manual of traversy computation on the Lambert grid. By Oscar S. Adams and Charles N. Claire. 1935. 235p. U.S. Coast and Geodetic Survey Special publication no. 194.

Principles of snow surveying as applied to forecasting stream flow. By J. E. Church. Journal of Agricultural Research. v.51, no.2. July 15, 1935. p.97-129. Relative value of different methods of forecasting. Variable factors affecting run-off. Predicting run-off from large areas. Inaugurating snow survey. Snow surveying in practice.

Triangulation adjustments in plane coordinate systems. By R.M. Wilson. Engineering News-Record. v.115, no.14. October 3, 1935. p.459-463. Simplification of method of observation equations applied in computation of triangulation surveys whose rectangular coordinates are used.

Tractors.

Walking tractor specifications. Compiled and tabulated by Kenneth R. Frost. Implement Record. v.32, no.9. September, 1935. p.8.

Ventilation.

Fresh air for cows. By H.L. Cosline. American Agriculturist. v.132, no. 17. August 17, 1935. p.3. Gives diagram of intake and outtake flues.

Water Proofing.

Waterproofing and dampproofing. By Tyler Stewart Rogers. American Architect. v.146, no.2632. April, 1935. p.66-85. Article presents unbiased analysis of present-day knowledge, gives facts upon which authorities are in agreement and reports recommendations of two or more different schools of thought where accepted authorities differ. Where findings of research men are negative or indecisive, or are contrary to field experience, facts are reported, and no discussion is attempted. Subject treated in four sections: (1) constructing water-tight masonry below grade or otherwise subject to hydro-static pressure; (2) constructing weather-resistant masonry above grade; (3) remedial waterproofing methods; and (4) remedial dampproofing methods.

Water Purification.

National Resources Committee suggests extensive pollution control plan. Engineering News-Record. v.115, no.14. October 3, 1935. p.480. Committee recommended six point program to aid effective control of water pollution. 1. Where drainage area authorities exist for development and control of water, their scope be made sufficiently broad to include control of pollution. 2. No basic changes in existing federal

law with reference to water pollution control be made until experimental program presented here shall have indicated whether or not such changes are desirable and feasible. 3. Simplification and coordination of state laws be effected to provide for following minimum requirements: (a) Adequate administrative control. (b) Delegation to administrative agencies of power to determine nature and extent of pollution prohibited by statutes, and to establish limitations of pollution. (c) Appropriate mandatory powers, particularly to compel installation of essential remedial works and force other necessary action. (d) No limitation on taxing or bonding power of municipalities, when applied to remedial works ordered by administrative agency. (e) Power to require facilities through sewerage districts, sanitary districts, or otherwise, that will enable municipalities and industries to comply with the law. 4. Broader authorization for research be granted to those agencies of federal government which are already concerned with various phases of problems, and that adequate funds be provided for properly coordinated investigations. 5. That powers and funds be granted to appropriate federal agency to institute cooperative program of investigation with legally constituted state agencies for such special studies as appear desirable, and particularly for development of appropriate standards for water use and control. 6. In order to stimulate construction of pollution abatement works, funds for purpose be made available by federal government to local agencies on grant or loan basis.

Water Resources Committee.

Members of Water Resources Committee. Science. v.82, no.2120. August 16, 1935. p.146.

National resources committee to study water resources. Engineering News-Record. v.115, no.8. August 22, 1935. p.272. Committee will be engaged in outlining plan for effective use of water resources, and continuance of policy set forth in report of Mississippi Valley Committee, and in report of National Resources Committee.

Water Supply.

Artesian waterbed revealed in North Dakota. Engineering News-Record. v.115, no.8. August 22, 1935. p.261. Survey of Minot area, comprising about 2,800 square miles in north central portion of North Dakota, conducted by U.S. Geological Survey as public-works project in 1934, revealed rather extensive artesian waterbed. Des Lacs artesian area extends, in narrow belt 1 to 3 miles wide, north of Berthold southeast through Lonetree and Des Lacs to point a few miles south of Minot. In this area water under considerable pressure can usually be found within about 300 feet of the surface.

Farm water supply equipment. By C.A. Cameron Brown. Journal of the Ministry of Agriculture. v.42, no.4. July, 1935. p. 319-325.

Ground water relieves drought emergency. By G.H. Taylor and R.M. Leggette. Engineering News-Record. v.115, no.11. September 12, 1935. p.359-361. Illustration of increasing importance of groundwaters in water supply.

Water Supply. (Cont'd)

Hot water tops the list. By L.J. Smith. Idaho Farmer. v.53, no.15. July 25, 1935. p.15.

Plan to provide adequate water storage. Agricultural Engineering. v.16, no.7. July, 1935. p.274. Agricultural engineers have worked out plan whereby no water need be wasted, cleaning out or deepening is made easy, and at same time additional storage facilities may be provided. Plan, briefly, consists of making auxiliary tank or pond. This should be located near existing reservoir, and, of course, should be deeper. Water in old tank or pond can then be drained in new one. Old reservoir is now ready to be deepened or cleaned out.

Showmen battel the drought. Popular Mechanics. v.63, no.5. May, 1935. p.686-689. Based on estimated snow-water runoff, federal workers are creating weirs, dams and basins to catch and hold snow water for release into streams next summer. More than 100 snow-measuring stations are operating, and for the first time, high-level snow service has been extended to the mountains east of the Mississippi as well as those to the west.

Stabilizing our water supply. By Alf. M. Landon. Bureau Farmer. Kansas Section. v.10, no.11. July, 1935. p.7, 9. Works of man cannot remove causes of flood and drought, but they should be directed toward protection of people from destructive effects of these menaces. Throughout length and breadth of this region natural water storage is non-existent. This lack of storage capacity causes streams to vary so greatly in their flow, making droughts more difficult and floods more dangerous. While undoubtedly some levees and channel straightening are needed for flood protection, particularly on lower reaches of streams, great need is for conservation and storage of water. In addition to storing water in ponds, lakes and basins, tillage methods and other practices should be followed which will help to conserve and to store water on those acres which are annually tilled. Water held back for crop needs also serves its part in scheme of flood protection.

To estimate water from snow available for irrigation. Western Irrigation. v.17, no.12. September, 1935. p.7. Snow survey now being started in Colorado, Wyoming and other western states is expected to improve materially present methods of estimating available water for irrigation from winter snows. More accurate forecasts of probable water run-off in spring and summer from snows high in Colorado Rockies will aid farmers in irrigated regions in planning their planting and cropping programs. Work is being supervised by Federal Bureau of Agriculture Engineering. From water content of snow samples and familiarity with vegetation, exposure of snow banks and wind evaporation, it is believed that practical estimates of amount of water available for irrigation purposes may be made each spring.

Underground water rights. California Cultivator. v.82, no.14. July 6, 1935. p.410. In arriving at equitable administration underground and surface water cannot be entirely dissociated, because connection between surface streams and tributary or supporting percolating waters is too marked. To divide surface water in area embracing any

Water Supply. (Cont'd)

part of stream system according to one set of priorities and underground waters according to another set, without regard to possible interrelationships will infringe sooner or later upon prior river rights. Under correlative doctrine, location of land is all important; under appropriative doctrine, location of land is all important; under appropriative doctrine, use of water is basis and location of place of use is secondary. Location with reference to water supply is important economically, but quality of land is one of primary factors affecting production of crops. In appraising benefits other than legal, it is more important that irrigated land be good than that it be located squarely over underground water. Making extent of overlying territory determining factor is not necessarily conducive to best use of water. Present appropriative doctrine should be modified to include economic use of water and more stress upon element of public benefit.

Weather.

Doing something about the weather. By William E. Warne. Reclamation Era. v.25, no.8. August, 1935. p.154-156.

Intensive weather research valued above Klondike gold. Science News Letter. v.27, no. 742. June 29, 1935. p.413. Accurate knowledge of climatic factors needed for intelligent planning of western agriculture.

Synthetic weather. By Thomas Midgley, Jr. Industrial and Engineering Chemistry. v.27, no.9. September, 1935. p.1005-1009. Despite the adverse economic factors of the depression, air-conditioning is rapidly assuming proportions of major industry.

Wells.

If I were digging a well. By W.E. Code. Western Farm Life. v.37, no.7. July 15, 1935. p.6. Soil, water table and capacity would be tested before buying irrigation plant.

Wells may solve problem. Idaho Farmer. v.53, no.12. June 13, 1935. p.2. Use of underground water urged for Snake River area.

Wheat Smuts.

Removing smut balls from seed wheat. By W.M. Hurst, W. R. Humphries, R.W. Leukel, and E.G. Boerner. 1935. 16p. U.S. Department of Agriculture. Circular no.361.

Wood Preservation.

Manual on preservative treatment of wood by pressure. By J.D. MacLean. 1935. 124p. U.S. Department of Agriculture. Miscellaneous publication no. 224.

Wood is preserved longer by non-toxic oils. Popular Mechanics. v.64, no.1. July, 1935. p.38-39.

Wood preservatives lessen cost of farming. Utah Farmer. v.56, no.1. July 15, 1935. p.20. Best results are obtained by cutting all boards and timbers to finished sizes and treating them before they are assembled. Brust treatment is simplest way of applying creosote but also is least effective.